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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/775,958

02/09/2004

Kwang-Ho Han

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1600

20575

7590

05/21/2008

MARGER JOHNSON & MCCOLLOM, P.C.  
210 SW MORRISON STREET, SUITE 400  
PORTLAND, OR 97204

EXAMINER

KEENAN, JAMES W

ART UNIT

PAPER NUMBER

3652

MAIL DATE

DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/775,958	<b>Applicant(s)</b> HAN ET AL.	
	<b>Examiner</b> James Keenan	<b>Art Unit</b> 3652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 January 2008.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-6,8-13,15-21 and 23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-6,8-11,21 and 23 is/are allowed.
- 6) ☒ Claim(s) 12,13 and 15-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 18, last line, it is not clear to which element the term "movement" refers.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 12, 13, 15 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al in view of Wu, both previously cited.

Shin et al teach a method of positioning a wafer on a susceptor 24 comprising placing the wafer on lift pins 12 protruding through openings in the susceptor, lowering the pins, and moving guiding blocks 22 to position the substrate at a predetermined aligned position on the susceptor (see col. 5, line 40, to col. 6, line 5).

Shin et al show the guiding to move up and down rather than inwardly and outwardly on the susceptor. However, because of the beveled shape of the portion of the guiding blocks which actually engages the wafer, the effect of moving the guiding

blocks up and down is the same as though they were being moved radially (inwardly and outwardly), as described in the above noted passage.

Furthermore, Wu teaches that is well known in the art to utilize a mechanism for radially moving a plurality of wafer engaging rollers 6 (guiding blocks) inwardly and outwardly relative to a table 4 (analogous to Shin's susceptor) for centering and aligning of the wafer.

It would have been obvious for one of ordinary skill in the art at the time of the invention to have modified the process of Shin et al by moving the guiding blocks inwardly and outwardly, as this would merely be an alternate equivalent manner of moving the guiding blocks to center the wafer, the use of which in the apparatus of Shin et al would neither require undue experimentation nor produce unexpected results.

Re claim 13, the guiding blocks clearly move "a predetermined distance", as broadly claimed.

Re claim 15, both Shin et al and Wu teach testing to determine the proper positioning of the wafer.

Re claim 17, since Shin et al's device is used in a heating environment, adjusting the guiding blocks based on temperature would have been a mere design expediency.

5. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shin et al in view of Wu, as applied to claim 15 above, and further in view of Horr et al (previously of record).

Although Shin et al is used in a vacuum environment, there is no explicit teaching of detecting a vacuum level in a vacuum line communicating with a vacuum space.

Horr et al shows a wafer alignment apparatus in a vacuum environment including pump 28, line 27, and sensor 17 (col. , lines 28-33 and 62-66, and col. 4, lines 15-17).

It would have been obvious for one of ordinary skill in the art at the time of the invention to have further modified the process of Shin et al by detecting a vacuum level in a vacuum line communicating with a vacuum space, as taught by Horr et al, to more accurately detect and align the substrate.

6. Applicant's arguments filed 1/8/08 with respect to claims 12, 13, and 15-17 have been fully considered but they are not persuasive.

Applicant argues that there is a space between the wafer and guide block of Shin et al, and thus the reference will not be able to perfectly center the wafer and that the wafer may not even slide down the inclined edge of the guide block. Applicant then asserts that using the radially moving guide blocks of Wu is impermissible hindsight.

This is not persuasive. First, the space shown in the drawings of Shin et al is clearly exaggerated for viewing purposes. Otherwise, the guide blocks would not be able to "direct the wafer W toward the central portion of the supporting part 24", as set forth in col. 5, lines 56-57 of Shin et al. Furthermore, claim 12 merely requires the guide blocks to position the substrate at "a predetermined, aligned position", as broadly claimed, by moving outwardly and inwardly. There is no requirement as to the degree of accuracy involved in this alignment. While it is true that in cases of gross misalignment

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the wafer may not slide down the beveled edge of the guide block, Shin clearly teaches that the desired purpose of the device is that the wafer does slide down said surface. Shin is clearly capable, at least under normal circumstances, of centering a wafer on the susceptor. The repeatability of doing so is not germane to the claimed invention.

Applicant further argues that placement of the rollers of Wu would interfere with the lifting pins of Shin et al. However, one of ordinary skill would readily be able to configure the rollers such that they did not so interfere. References do not need to literally “bolt together” in order to show obviousness. Applicant yet further states that because the guide blocks of Shin et al form a boundary of the susceptor and are incapable of inward movement, one would not be motivated to install the inwardly (i.e., radially) moving blocks. Yet this is exactly why the Wu reference is utilized; i.e., to accommodate wafers of varying diameter (smaller than the susceptor) that Shin et al can not accommodate.

Finally, applicant argues that the combination does not teach the method steps of moving the guide blocks outwardly while the pins descend, and then moving the guide block inwardly once the pins drop below the susceptor. However, applicant’s arguments attack the references individually. While it is true that the guide blocks of Shin move up and down rather than in and out, that it is a moot point because the modification of that reference is to replace the up and down movement of the guide blocks with the radial movement suggested by Wu. With the guide blocks moving radially, the only logical manner of centering the wafer would be to move the guide blocks outwardly while the lift

pins descend, and then move them back in to center the wafer once the pins have descended below the susceptor.

7. Claims 1-6, 8-11, 21, and 23 are allowed.

8. Claims 18-20 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to James Keenan whose telephone number is 571-272-

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6925. The examiner's supervisor, Saul Rodriguez can be reached on 571-272-7097.

The fax number for the organization where this application is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/James Keenan/  
Primary Examiner  
Art Unit 3652

jwk  
5/19/08